UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
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SINKING OF THE S.S. *EL FARO*	*	
ON OCTOBER 1, 2015	*	Docket No.: DCA16MM001
	*	

Interview of: ROBERT HANRAADS

Via Telephone

Thursday,
March 9, 2017

APPEARANCES:

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National Transportation Safety Board

ERIC STOLZENBERG, Naval Architecture Group Chairman
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I N D E X

I N T E R V I E W

(1:05 p.m.)

MR. KUCHARSKI: Okay, thank you. The interview, along with the errata, will go in the public docket.

You are allowed to have a personal representative at this interview. And I understand that's Mr. White; Is that correct?

MR. HANRAADS: That's correct.

MR. KUCHARSKI: Okay, great. Great. And the -- just to give you -- I don't know if you've participated in any NTSB interviews, but just to give you a brief overview -- I think everybody else has probably heard this a million times, and I apologize, but this -- we're an independent agency, the NTSB is, and we're charged with determining probable cause of transportation accidents.

Specifically, this accident we're investigating is the sinking of the *El Faro*. And we don't have -- the NTSB has no regulatory or enforcement powers. So we're in the -- still in the fact-finding stage, getting pretty close to wrapping that up. And then we have our analysis, probable cause and recommendations, if there are recommendations.

So before I go around and introduce everyone else on the phone, today is the 9th of March 2017. It's 1:05 -- 1305 Eastern Standard Time, and this interview is taking place telephonically.

Mr. Hanraads, I understand, though, you are on the -- in the Houston Office of ABS; is that correct?

MR. HANRAADS: That is correct, yes.

MR. KUCHARSKI: Okay. Okay. And my name is Michael Kucharski. I am the group chairman of the Nautical Operations Group in the *El Faro* sinking, if you will, the loss of the *El Faro*, and I work for the National Transportation Safety Board.

Could you state your name, full name for the record, and would you spell it, please, Mr. Hanraads?

MR. HANRAADS: My name is Robert Hanraads, and the last name is spelled H-A-N-R-A-A-D-S.

MR. KUCHARSKI: Thank you. And could you give us your title, please, at ABS?

MR. HANRAADS: I am manager, Rapid Response Damage Assessment Program.

MR. KUCHARSKI: Okay, great. And your employer is the American Bureau of Shipping; is that correct?

MR. HANRAADS: That is correct.

MR. KUCHARSKI: Okay, great. Now if I could go around the -- I hate to say, go around the room, but on the telephone line, could we start off with the NTSB first? Identify yourself and what your connection is. And then we'll go with the Coast Guard next, and then the other parties, please.

MR. STOLZENBERG: Good afternoon. This is Eric Stolzenberg. I'm the group chairman for naval architecture part of the investigation for the NTSB.

MR. KUCHARSKI: Coast Guard?

[redacted]: -- for NTSB -- this is [redacted], a member

with the Coast Guard. I'm a member of the Operations Group on NTSB's investigation.

MR. KUCHARSKI: Thanks, [redacted]

TOTE, please.

MR. PETERSON: Lee Peterson. I'm the TOTE party coordinator.

MR. KUCHARSKI: Thank you, Lee.

MR. O'MEARA: Dennis O'Meara, and I'm a representative from the Naval Architecture Group.

MR. KUCHARSKI: Thank you, Dennis.

HEC?

MR. SCHILLING: This is Spencer Schilling, president and naval architect with Herbert Engineering, and party in interest.

MR. KUCHARSKI: Okay, thank you.

Mr. White?

MR. WHITE: Gerry White, outside counsel for ABS, personal representative for Mr. Hanraads.

MR. KUCHARSKI: Okay, great. Is there anyone I've left out?

MR. GRUBER: Tom Gruber, ABS rep to the Naval Architecture Group.

MR. KUCHARSKI: Sorry, Tom. Thank you.

MR. GARZA: Erik Garza, associate general counsel for ABS.

MR. KUCHARSKI: Okay. Thank you, Erik.

Okay. Gents, what I would like to do, and Mr. Hanraads, what I would like to do is, I will ask some questions. And I'll try to pause, to see if there are any follow-on questions in that

particular line, and then we'll continue along. And I'll try to take breaks to give people the opportunity to ask a question on that particular line, if it's -- before it sort of fades, if you will, or we have to go back and revisit, or refresh any memories.

We -- I'm sorry. Did someone say something?

MR. STOLZENBERG: I was clearing my throat. Sorry.

MR. KUCHARSKI: No, no. Okay.

Okay. Please, when you answer, answer all the questions to the best of your recollection. If you don't understand a question for sure, ask me to repeat it, or explain it. And the idea is not to try to trick you in anything here. If we need to go off the record and clear something up, by all means, we will. But, you know, I just want to make sure that you understand the question, or that it's stated clearly enough for you. So --

MR. HANRAADS: Very good.

INTERVIEW OF ROBERT HANRAADS

BY MR. KUCHARSKI:

Q. So again, thank you very much for attending. And if you would, could you start off and just give us a brief overview of your education and work-related background?

A. So I started my career at sea as a cadet, about the age of 17, and was with a British company called the Bank Line for just a little over 12 years. And that company had predominantly breakbulk ships, with some tankage and some container ships. And during that time, I got a master mariner's license in the UK's

system.

And then I left and went ashore for 3 years, and actually have been ashore since, in one capacity or another. But at that time I went -- teaching in the maritime school in Papua, New Guinea, teaching some stability and navigation.

And then, from there, I came to the United States and worked for a company out in Houston called Noble Denton, and was a warranty surveyor for those guys for about 9 to 10 years, and was introduced into the offshore industry at that point, and was a rig mover, and did various other things in that capacity, all marine-related, and predominantly offshore, but a lot towage involved and some salvage, a little bit of salvage in that, worked on claims and on behalf of the underwriters, mostly.

And thereafter, I've worked in ABS Consulting as their resident mariner. ABS Consulting, at least as far as I was concerned, was mostly involved in risk studies of one sort or another, which I provided marine input for, waterway suitability assessments and the like, for the U.S. Coast Guard. And I'd also spent a significant amount of that time doing condition assessments in various deepwater applications, mostly in the Gulf of Mexico.

And subsequent to that, I've -- in about 2010, moved from consulting to be the manager of the Rapid Response Damage Assessment Program here. And I have temporarily managed the department prior to that, when it was located on the consulting

side of the house. And so, since 2010, I've been the manager of the rapid response here in ABS, to present.

Q. Okay, great. Thank you for the overview.

MR. KUCHARSKI: We had somebody join the conference call while you were speaking. Could that person identify themselves, please?

DR. STETTLER: Yeah, Mike, I'm sorry. This is Jeff Stettler. I got caught in something.

MR. KUCHARSKI: Okay, no worries. Thank you, Jeff. Thanks for taking the time and joining. Thank you.

BY MR. KUCHARSKI:

Q. So Mr. Hanraads, could you give us a brief overview, and what -- let me pause for a second. The questions that I'll ask now, most of them will be very general, about the RRDA. And I'd like to save, towards the tail ends, more specific questions about *El Faro* and how things were set up for the *El Faro* in the RRDA.

So could you give us an overview of the RRDA, you know, how it works, how it's structured?

A. I will. We are a small department within the American Bureau of Shipping, located here in Houston at the headquarters. We are a group of nine full-time employees for ABS, but specifically for the rapid response. Out of that, the breakdown of those, for those nine, are two administrative; myself, a mariner; and the six remaining are engineering staff, mostly naval architects, two ocean engineers.

Day-to-day routine business is to let the maintenance of -- or the introduction probably, for the most part, of new ships into RRDA, the enrollment of those ships into RRDA. And what that means is the creation of a model in software that we use, which is HECSALV. So that probably takes, day-to-day, the vast majority of time of the engineering staff.

And we currently maintain about 2,500 ships in the system, of all sorts, predominantly tankers and bulk carriers and container ships, with a lesser number of other types of ships. And we provide a facility that is ready for responding to an emergency event on a ship that is enrolled in the program. And so that means that within the facility we maintain a fair, what I would say, a good degree of hardness, relatively speaking, in terms of our ability to man up to an event, when it's -- when we're called, and to have the software and hardware and the access to data available for us when we need it.

And in addition to the normal working environment, we have two separate response rooms very close to where we normally sit, that are fixed with computers and wired into emergency power and backup service, et cetera, so that our -- the integrity of that data is as good as reasonably possible. And we have, of course we have procedures about how we do that and how we maintain that, to include normal routines and response, also.

And we work a roster of availability. So the intent is that we can manage to respond -- two simultaneous responses. And even

in the trailing aftermath of a third event, probably also ongoing. So -- and we do that by working a roster with the seven staff that are actually on call. We have, of those seven, myself and another individual are what we call team leaders. And then we have five engineering staff that would be expected to attend in very, very short notice, after hours, and of course during hours.

And the team leaders will facilitate communications with our clients and the sort of requirements, and they extract, as best as we can, data that's available as a scenario unfolds. And the attending engineers will get the model up and running for the ship that's the point of the scenario, and then, of course, load that model with the data that we receive when we receive it.

And then, further to that, once we've established the baseline, which is a working model, and loads data input that is known to be as accurate as possible for the current condition, then we'll validate that against the output from the ship. And from there, we can then sort of work an event tree out into what is the current condition or state of affairs with regard to what's known to be the problem on the vessel. And then -- and from there, work onward as more information becomes available.

And we generally do that, we probably have -- well, of course, we have a varying amount of incidents throughout the year; thankfully, not that many, and it seems to come in waves when it does happen. But we're also -- provide our service to -- we do a lot of drills and -- relatively speaking, that is, a lot of drills

and exercises. So that takes some time from our week, very often. And I think, essentially, that's the baseline answer that I have for you.

Q. Okay, great. You mentioned about 2,500 entries, mostly tankers, bulkers and container ships. Of those 2500, how many are classed with ABS? Sorry about that. I had mine on mute.

Mr. Hanraads, you mentioned that you have about 2500 entries into the RRDA; is that correct?

A. Yes, that's correct.

Q. And you mentioned that they're mostly tankers, bulkers and container vessels. How many are classed with ABS?

A. About -- I think the number is around 85 percent are -- not all of them.

Q. Okay. And do I assume that those are all U.S. flag?

A. No. No. They -- the vessels that -- please ask your question again.

MR. WHITE: Just to clarify, I think Mr. Kucharski's question was, out of the 85 percent that are classed by ABS -- or out of the 85 percent of the 2500 entries, are all of them U.S. flag?

MR. KUCHARSKI: Well, no, that wasn't my question. I'll ask it again.

BY MR. KUCHARSKI:

Q. Of the total number that you have, 2500, are they all U.S. flagged?

A. No. No. Most -- the amount of U.S. flagged vessels in that

2500 will be a minority. There are relatively few of them, compared to the total number of vessels that we have.

Q. Okay, great. Thank you. Can you tell me if the RRDA is required for certain types of vessels, or some kind of rapid response type program; is it a requirement for certain vessels, types of vessels to carry that?

A. It is a requirement, but only for tankers. And so, under the federal regulations United States and under MARPOL, there is a requirement for tankers to be enrolled in a shoreside service with a model, a premade model available.

After that -- and there are various -- the U.S., I think, details it a little bit more than the international regulations, but essentially any tanker of size, over 5,000 tons dead weight, has to be enrolled in a service that provides -- or not necessarily a service, but has to have the capacity to do calculations using a model from the shore.

Beyond that, for non-tank vessels, there is no firm requirement that the capacity -- well, there -- under the U.S. regs for salvage and marine fire-fighting, and non-tank vessel, vessel response plans, it leans heavily into the requirement for access to capacity, but it doesn't, to my knowledge, actually require there to be a pre-made model, just the capacity to do the calculations within a certain time.

So it's -- I think the U.S. regulations lean heavily on the operators to have the capacity, but don't quite cross the line

into saying you have to have a model to do that.
Q. Okay.
A. Like for the tankers, who do.
MR. KUCHARSKI: Okay. Thank you for that clarification. And I'd like to stop right there, and ask if there are any questions, general questions, before I continue. And please identify yourself to -- if you do ask a question.
(Simultaneous speaking)
MR. STOLZENBERG: Go ahead, Jeff.
DR. STETTLER: No, go ahead, Eric.
BY MR. STOLZENBERG:
Q. Okay. Mr. Hanraads, this Eric Stolzenberg, NTSB. Forgive me if I didn't hear it correctly, but out of the 2500 vessels in the RRDA program, what percentage are tankers, what percentage might be container ships, or Ro-Ros. Do you have a general feel for those breakdowns by ship class?
A. I have a general feel for it, and that's all it would be. I certainly get you the actual numbers, you know, so -- but generally speaking, sort of memorizing a pie chart that we have, just under half are tankers, about a third are bulkers, and -- let's see -- not doing the math in my head, but anyway -- and so tankers, just under half, bulkers just under a third, something less than that for container ships, and then other types of vessels would be the remaining, including off-shore related, and the likes of the kind of ship that the *El Faro* was.

Q. Thank you. And maybe we can get that pie chart, if we're allowed, just to reference, after the interview or down the road.

How many of those are voluntary, then? In other words, not required to be in it. So if I understood your earlier comments, the tankers would be required -- or are international tankers, are they or aren't they required to be in it? In other words, about how many of these --

A. So we can -- so disregard the tankers because they have to have exactly the kind of service that RRDA provides, that is, a model of their ship and resources ashore to be able to provide the service when it's needed, on a 24-hour basis.

If it's a non-tank vessel, they are required to be able to provide analyses in a fairly short order. Or well, on the international front, it gets somewhat vague because it steers more into their general preparations, and under ISM and other aspects of quality and emergency preparedness. But it doesn't specifically say they have to have a model of the ship built.

When non-tank vessels in, around the coast of the U.S., be the U.S. flag or non-U.S. flag vessels coming to the U.S., non-tank vessels, then they have to have preparations and an approved vessel response plan that details more -- you know, so it's a much higher level, what their preparedness is and who they're contracting with, in terms of salvers, and who it is that's going to be able to work out damage stability and strength for their ships.

So they have to have thought about it and written it into their plans, but they don't necessarily have to have a preemptive model of their ship. And so they don't. Although, at the same time, they have to be ready. So it's a bit of a conundrum.

Q. Okay, thank you. And just to be clear, when I said voluntary, so generally, if half the vessels in the RRDA are not tankers, those would be -- would they be voluntarily per their owners in the program, or is there another requirement that requires these non-tank vessels and bulkers to be in the program?

A. No. To my knowledge, they're there by choice, because they choose to be. They've arranged for our service, for whatever the internal reasons that they've decided.

MR. STOLZENBERG: Okay. Thank you very much. That's all on this topic area for me. Thanks Mike.

MR. KUCHARSKI: Sure.

Jeff Stettler, did you have a question?

DR. STETTLER: Yes. Yeah, this is Jeff Stettler, from the Coast Guard.

BY DR. STETTLER:

Q. Mr. Hanraads, I just wanted to follow up. You mentioned requirements, and you talked about a -- I think you said C.F.R., a C.F.R. requirement, and MARPOL requirements. You mentioned timelines. Could you expand on timeline requirements for your response, in terms of your analyses that you might perform?

A. Under the regs or internally?

Q. Well, actually, my next question was going to be internally, but if you could maybe start with under the regs, and then talk about if you have any internal process guidance which might clarify that further.

A. Right. The actual references made inside MARPOL, on the international side of it and under the C.F.R.s here in the U.S., at least, let's say, for tankers, are not particularly specific in detailing exactly what it is that the expectation is with regard to how long it should take.

And there has been sort of evolutions of that. I haven't mentioned the OCIMF, which is a non-governmental group on behalf of oil producers and folks that terminal and transport oil. They've actually gone ahead and developed a very robust guide for rapid response, and so -- for this type, this service that is like RRDA.

And so, it's not frequent that we see references to how quickly these responses should be implemented, but there are some references. And in May 2016, IACS actually put out a recommendation about emergency response services. And in that, I think there's a 2-hour requirement. Actually, I'm looking at the reference here. So it says, "The response service should be available to input details for the conditions of a ship within 2 hours," unless you're a passenger ship, and then they say 1 hour.

So there is the implementation of a sort of tightening of these requirements through recommendations. But where a response

within a time frame is specified as such, it is -- I've seen it in the salvage and marine firefighting realm where the requirement for a thorough stability assessment, and that has a definition, but an initial structural and stability assessment has to be completed for a vessel in some form of distress within -- if it's within a, you know, relatively close area of the coast, within 9 hours, and further out, offshore, or a more remote area, is in 18 hours.

But that's a little different because that really is a requirement for the mobilizing of people out to a vessel for an inspection to -- you know, an initial inspection to have been done and for that data to be feeding back into something that enables an analysis to be made on stability, for stability and strength for a vessel, say, aground, or something like that.

So it's a bit spotted, in my opinion, here and there. But outside of that -- oh, and inside our organization, it's easier for this department to be able to expect a certain response time, and certainly, with regard to mobilization. And I think our guide also says -- so ABS has a guide. If I'm not mistaken, it says 2 hours, for us to be able to respond after hours, meaning to be into -- and up and running.

But the reality of it is that we all live relatively close to the office, and the unofficial expectation is that we're able to respond inside an hour, you know, folks are actually walking into the office here inside an hour. And I say that because that's

something we do quite reliably.
Q. And then, I think you sort of answered this. Is the -- so that's the beginning of your response, in other words, getting settled in and starting the response. But you mentioned, I think you said 9 -- it's either 9 or 12. I think the C.F.R. is 12 and 18, for near shore and offshore. But that's for completion, correct?
A. That's for completion. That is correct, yeah.
Q. Right. And do you have a similar time frame within ABS for providing the client or the vessel, you know, basically technical guidance?
A. No, we don't. We have nothing that's stated in that way.
DR. STETTLER: Okay.
MR. KUCHARSKI: And gents, we have detailed questions on response times.
DR. STETTLER: Okay.
MR. KUCHARSKI: We're going to bring those in a little bit later, but I'd just like to get some general questions, if --
DR. STETTLER: Okay. That's fine. I will pass, then. Thank you, Mr. Kucharski.
MR. KUCHARSKI: Thank you. Thank you. Any other general type questions before we move on? Okay.
BY MR. KUCHARSKI:
Q. Okay, Mr. Hanraads, this Mike Kucharski again. If the vessel is classed with ABS, does the RRDA get information from the ABS or

does that come from the owners?
A. Depending on the age of the vessel. If the vessel is newer, then we will have most, if not all, of the data in-house. And that, certainly on a day-to-day basis is normally the way it works. There are exceptions, perhaps very old vessels or vessels that are coming into ABS class from another class society. But for the most part, we would expect data to be available in-house for enrollment.
Q. Okay, great. Thank you. Thank you for that answer. And can you tell us, if the vessel uses a stability program or a loading program, does the RRDA have that program? Do they have the rights to use that type of a program?
A. I think I'm answering your question correctly. Does RRDA -- so to reiterate the question to you, does RRDA have the right to use a cargo loading program on one of the vessels that's enrolled? Is that the question?
Q. Yeah, that's correct. That's correct. And I have some follow-on questions about CargoMax and HECSALV, but for the time being, if -- let's just say it's not CargoMax or information, do you also have other -- access to other stability programs that an owner may have on their vessel?
A. Right. No, we don't. The only -- in fact, I suppose to be a hundred percent accurate, we don't have any of the approved loading programs that you might normally find on a vessel. And we don't have CargoMax. We operate our department using HECSALV

only.

MR. KUCHARSKI: I see. Okay. Let me just stop there. I know it's only two questions, but are there any follow-on questions as far as loading programs, or anything like that? Okay. Let me move on, then.

BY MR. KUCHARSKI:

Q. Can you tell us, is it -- you say you have a number of incidents which you have to respond to annually. Who initiates the initial phone call? Is it usually the owners? Or is it the masters, or who makes that first phone call?

A. It is usually --

MR. WHITE: Are you asking with respect to casualty, or a --

MR. KUCHARSKI: Yes, an incident. An incident, yes. Some kind of an incident, yes.

MR. HANRAADS: It is normally a vessel manager, and specifically, the designated person ashore that calls RRDA. Occasionally, it will be the master. It used to be the master more frequently, but now it is the master much less frequently and it is usually not the owners, but the -- who it is that is managing the ship.

BY MR. KUCHARSKI:

Q. Okay. And the use of the RRDA, is that pretty much solely in emergency situations?

A. Yeah. We don't do other sorts of stability or strength-related work. It is either the result of an emergency that's

started or ongoing or is -- the emergency has passed and the vessel's in some stage of recovery and possibly wanting to transit, and we will assist with some engineering analysis on it on behalf of the managers, but also to be a part of the process moving the ship forward, to meet the requirements internally.

Q. Okay. Okay. And is the -- for the RRDA to -- not in an actual incident or an accident or a casualty, if you will, is there a fee to belong to the RRDA or use the -- have an entry, say, a ship entered into the RRDA?

A. There is a nominal fee for continuing to have access to the service, and that is an annual fee. And although we don't charge, we mostly do not charge for the enrollment process, occasionally if it's an older type vessel or a particular type of vessel that may have, you know, a more protracted kind of modeling time or event, we might specifically cover those fee -- those expenses with an enrollment fee. But mostly we enroll the ships without charge and then, thereafter, charge an annual fee.

Q. I see. I see. And then, for an actual accident, you mentioned that you have different team members, if you will, and then you have access to team leaders and engineering staff, if you will, to augment. Then do you -- for the accident, do you charge an hourly, say, for each one of those team members? Is that how it's structured?

A. Yes. We've got a fee schedule that is based on a normal rate within the organization here. And we work on an hourly rate

basis.

Q. Okay. Great. Thank you. And can you tell us if drills are included in this annual fee, and if so, how many per vessel, and give us a little bit of background on that? How long do the drills last and how in-depth?

A. Right. Yeah. The drills run the gambit from nothing more than connecting through our emergency phone to one of us or our operator with nothing further required, to an attendance over 2, 3, or even 4 days, with a very occasional attendance of one of our engineers, on a full-scale sort of exercise program. They are few and far between.

What is much more common is a 4-hour drill, whereby we will receive a call with a scenario that the vessel operators have put together. And they may be testing other parts of their emergency response capability, but it will certainly include some component for RRDA. And that comes in, sort of, different formats. It tends to -- in 4 hours, there's -- or even perhaps more frequently, 2 hours, there's a limited amount we can do. But it's a good test of the sort of first tier response capability, and it gives us the opportunity to check our model and to reach out and handshake, as it were, and increase these relationships.

On the larger scale events, they are centered around West Coast, the Trans-Alaska pipe shuttle service between Alaska and California and Washington. And those folks are required to do an extensive testing of their capacity, and we might be a, you

know -- I don't want to say a smaller part because we still are fairly significant in what happens. But there's a lot more going on in those than just stability and strength components of it.

Q. Okay. And this is Mike Kucharski again. So you said it's about a 4-hour drill; is that correct?

A. I would say 2 to 4 hours is most typical.

Q. And is there a limit to how many drills a vessel can have -- can conduct a year, or --

A. We keep it by -- on purpose, we keep it fairly loose in that regard. We appreciate the opportunity to turn on an exercise from our side, as well as meeting the client's requirement. So we say on our rate sheet that we'll facilitate one free drill per year, per company, not per ship. And we tend to probably do more than that, actually, in reality.

But from a RRDA operations side of it, with as many ships and clients as we have, if they all chose to exercise throughout the year, we would have a different sort of demand on the folks here. So we probably have -- throughout the year, we probably have, on average, two a month, I would say, drills.

Q. Okay. Approximately two per month. But you mentioned that it's one free drill per company, not per ship.

A. Correct.

Q. If an owner wanted to do one per ship per year, is there some kind of a fee you would charge them, then, for that?

A. Yeah. We would then at least have the option to be able to

charge to cover the time and cost from our end.
Q. And would that be on an hourly basis, you know, for all the people that you have shore side at ABS, at RRDA, or the augmented staff, if you will, the staff augmenting? Is that an hourly, per each person, or do you just give a cost for the actual drill?
A. According to the fee schedule, it's on an hourly basis. When we do charge, it's because -- you know, it's not infrequent that we'll come in after hours, depending on where the company is that's initiating the drill. And they might prefer to do it daytime, or office time where they are, which would mean 3 or 2 o'clock in the morning our time. And when that happens, then I'll ask that they cover the expenses at my end with a charge. And we'll do a sort of flat rate, perhaps, just rather than on an hourly basis. We'll come to an agreement.
Q. Okay. Okay.
A. So that they know exactly what the number will be.
Q. And are there any owners that have a drill per ship, each year?
A. No.
MR. KUCHARSKI: Okay. Let me stop there, and see if there are any questions on drills or loading program or call-ins, if you will.
MR. STOLZENBERG: This is Eric Stolzenberg, NTSB.
BY MR. STOLZENBERG:
Q. Mr. Hanraads, you -- I think you said that you use HECSALV.

Can other outputs be imported into HECSALV easily or do you have to hand-type each entry? Can you import en masse through CargoMax or a different type of loading program or stability program?

A. The only loading program that we can import from is CargoMax. And so, when we know there's a CargoMax software available, or an output, an LC file from the ship, we certainly make sure to ask for it. We don't necessarily know, though, whether the ship does have it or not.

So that's the only program we can readily -- or I say that. We, for larger container ships, we -- you know, dedicated container ships that might have thousands of containers on board, we can import other data via a batly (ph.) file from the container ship. So we can manipulate some other data. But mostly, incorporation of a full load case into HECSALV can only be done directly, to my knowledge, at any rate, from CargoMax, and also, of course, a Herbert product. And otherwise, it's a PDF output copy from the ship's own loading computer that's emailed to us and we hand input.

Q. Understood. Thank you. And a follow-on question to Mike's topic areas, I think you mentioned earlier, if I heard you correctly, that in the past, masters, in your experience, masters more often initiated the call to the RRDA for casualties but usually now that's ship managers; is that correct?

A. Yeah, and I think for good reason. Years ago, when I first started getting experience in RRDA, we would have good

conversations with the master going on, which on one hand, was great, because we were getting first-hand information.

But then, it turns out there was a, you know, probably a major disconnect between the flow of information, and that -- because things tend to change quite rapidly, certainly in the early periods of a response, when to some extent some people -- generally, we don't -- we may not know exactly what's going on at all, other than in general terms, nothing specifics with regard to content and spaces and all that. We found it detrimental to be having a conversation with the master, where even though we might be getting great information, the master would then perhaps learn something new and fresh 10 minutes later in a conversation to his managers, would relay that. And then, of course, everybody's desperately busy. And we would find out an hour and a half later that we were still working on the thing that the master had told us, but the new information that was learned just after that conversation never made its way back to us.

So I think it's a much better sort of line of communication for the master to communicate with a single point, and for us to reach that single point, or for that single point to connect with us.

Q. So if I understand you correctly, it's not a disadvantage to have the ship manager call, because the communications are clearer when they're not going parallel, when they're in a single line from the master to the ship manager to you?

A. Right. That's certainly a pretty good considersation to be made, I think, provided that the line of communication's what we find from the get-go. We're more than happy to talk to the master. There are certain advantages with that. But I think, generally speaking, certainly as has been borne out in the last few years, we frequently never talk to the master at all, more frequently never talk to the master.

MR. STOLZENBERG: Okay, thank you. Thank you for the insights there.

That's it for me, Mike.

MR. KUCHARSKI: Okay. Thank you. Any other questions on the line?

BY MR. KUCHARSKI:

Q. Okay, then I'd like to move into some more questions. Mr. Hanraads, does the RRDA get departure loading conditions from the entries? And, if so, what percentage would that be?

A. Of the 2500 ships that we have, we have about 50 that send us load departure case details, routinely.

Q. That was 5-0; is that correct?

A. Correct, yeah.

MR. KUCHARSKI: Okay. Eric, I think you had some questions along the line of the departure loading conditions, yes?

MR. STOLZENBERG: Yeah, I have some questions along that line.

BY MR. STOLZENBERG:

Q. To follow up on Mike, Mr. Hanraads, what are the class of ships those 50 are in? Are they predominantly tankers or a certain type of vessel?
A. Yes. All tankers, if I'm not mistaken.
Q. Okay. Thank you. Along the same lines, does the RRDA provide guidance or recommendations to ship managers, operators, regarding submission of departure loading conditions?
A. We do write it into the manual that we provide the ships when they're enrolled.
Q. And so do -- is there an active -- does RRDA actively solicit departure conditions from ships or provide a recommendation that you should provide departure conditions? Or does that vary with ship type?
A. No. We never solicit or advise, you know, specifically or in any other way, other than through our response manual. I say that. In general -- yeah, I would like to correct that. We do -- I do like to do outreach to clients in various ways, and have actually encouraged masters to have calls.

I suppose -- going back to the last question about communication, it is in those communication drills where we are more likely to have a master call in. And that is, he's just testing to make sure there's a warm body at the end of the number, emergency number that he's got.

And if I'm in a conversation, or frequently there is a sense that there's no need for a conversation nor one particularly

wanted, but I might engage the master at that time and -- if I sense that he's got time, and ask him if he's got any questions about, on this sort of thing. And during those times I, you know, I certainly promote the idea that load cases are taken. But that's sort of very much on an ad hoc-ish basis. We don't formally go out making notification or highlighting the fact that we have the capacity to accept these load departure conditions, or anything like that.

Q. Okay. What would be the advantage of having departure conditions, or is there an advantage to it? Maybe this speaks to Mike's time later, but is there an advantage, other than it makes it faster, if it indeed makes it a little faster to run the initial calculations?

A. I think the answer to that might lie in the way that a particular company is arranged and whether they -- let's say the management office, home office, routinely receives all the departure conditions, and whether it's got a very easy and prompt and efficient access into those load conditions for all departure cases, for all ships. And if that is the case, if the DPA gets it from a master that's got a situation going on, and he knows he can forward it to us in a heartbeat, he's got ready access to all that stuff, then there's probably no advantage.

We don't do anything with it when we get it. We keep it in our email. And we note, in our internal responder manual, the vessels that do do it. We revise that periodically so that's up

to date.

But if we got an emergency call, and one of the questions raised from us, do you -- have you sent the latest load case, the response could well be, for one of those 50 ships, you receive it routinely, in which case, I would just want to get a validation on what the voyage number is so that we make sure whether we're dealing with apples and apples when we get back to the load case.

But there is potential savings. But because we wouldn't take it and load it routinely, normally, it would still have to be loaded manually. It would just take one less thing off the to-do list for the DPA or the master.

Q. That's great. Now that you've answered my whole thought, and the questions along those lines of how it worked, and how it worked with the master versus the DPA. Thank you.

Last one I wanted to ask is back to the drills, and I apologize, but are there certain ship types that participate in drills more than others, in your recollection and experience?

A. Yeah, tankers first and others second, I think. Tankers, for sure.

Q. All right. Thank you. And lastly, I believe you might have already answered this. Noting that there are departure load conditions in an email, or that you keep them on hand for loading at a potential casualty time, does that come -- is there a fee associated with that?

A. No. No fee.

Q. All right, thank you.
A. Not at this time. If all ships started doing it, we'd have to make some special arrangement to make sure that we handled all that data correctly. But at this point, with very limited amounts of interest, you know, materializing, we can handle it on a very sort of easy way.
MR. STOLZENBERG: All right. That's all I have.
Thank you, Mike.
MR. KUCHARSKI: You bet. And any questions along the drills or the departure loading conditions? Okay.
BY MR. KUCHARSKI:
Q. Mr. Hanraads, now into, I think, what Dr. Stettler had asked about, and I know we have some questions along the line of actually manning up the RRDA during a shipboard emergency. Can you tell us how long it typically takes to man up the RRDA?
A. It's a very short period normally. The response rooms that we have are a stone's through from our desks. And so it's a walk. So it's a matter of minutes before the team lead and the engineer is setting up in one of the response rooms during working hours. And after that, it's probably about an hour before a similar sort of state is occurring to initiate an event.
Q. Okay.
A. So pretty much, it's, within reason, instantaneous, very short normally during office hours, and about an hour after office hours.

Q. Okay. And after the RRDA is notified, are there any outside entities, outside of the ABS, that are also brought in when you're notified?
A. No. No.
Q. Okay. And how many emergencies annually does the RRDA respond to?
A. Again, it comes and goes. But I -- my answer to that would be one a month. But we would caveat that with, it can change. It can be much, much less than that. And some of the emergencies that we're turned on for are -- resolve themselves and -- soft groundings in port entry or departure, that sort of thing. And yeah, major events, of course, are much less frequent.
Q. Okay. And so was there an approximate number -- I'm sorry, I missed that -- annually?
A. You could say 10 to 12 annually.
Q. Okay. Okay. And I'd like to go back. I've thought about this for a little bit, and you mentioned there were pros and cons of the master or the company notifying you. Could you tell us what the pros are of the master -- pros and cons for the master contacting you directly?
A. I think the advantage that comes to mind most is the fact that he's -- if he's got the expectation that RRDA is able to do analysis that he can't or otherwise doesn't have time for or doesn't have the capacity for on board, and that means something to him in terms of the decision process that he's in, then it's --

there's advantage in saving some time by him not going through his head office. But I -- okay. So I think that's the answer to your question. It's a time saving thing.

Q. And what would be the con or -- yeah, the con of a master contacting you directly?

A. I think the con is that the wheels can tend to fall off on who's got what information and what is the latest information to be coming from the ship. And depending on what resources are being allocated and what plans are being put into the process through his managing office, they will be losing some control of their process if the master's talking directly to me, as a third party.

So, and beyond that, you know, the more subtle things perhaps is, as a vessel manager, he may have to concern his -- with regard to liabilities, perhaps. Again, I'm not sure they -- I'm sure they've got a lot of different things that they have to consider in an emergency, and they would probably want as much control as they could have over it.

So, but for me, as the end user of data that I would be getting from the ship, the good thing is, if I'm talking to the master directly, I've got the latest. But -- in that moment, I've got the latest. But as soon as I'm off the phone to him, if he starts communicating back to his office and other information comes in, does he remember to tell the head -- to tell his office, or forget to tell RRDA what I just told you, or does he remember

to call me back himself?

But so, for him, he's probably having to reach out to more than just one person. And I think, for most events, it's good for the master if he's got a single point of contact, and that normally would be the DPA.

Q. Okay. And I was going to save this question till a little bit later, but I guess I'm a little bit fuzzy on communications. So is most of your communication by telephone? Is it by email or some other electronic form? And do you have -- well, let me stop and ask you -- stop just with that question, because then I have a follow-on in that.

Is it mostly by phone or is it by email that you communicate, or electronically?

A. It's both. And usually only phone and email. And communication really is the first place that things can start to go south. So it's very important for us to -- to me, as a team lead, to establish that line of communication. And it might be, you know, who am I communicating with? Am I communicating directly with the master? Am I -- who is my point of contact? That would be number one.

The other thing, I think, we've found to be of a benefit in RRDA is that we as quickly as possible gain some confidence in who it is that we're speaking to, gain their confidence that we're going to assist as best we can under the circumstances. One thing that we'll do, once we get a call, perhaps at home, at an odd hour

of the day, is to say a simple thing like, once I get to the office, I will call you. And when that happens, it sort of builds us up, because very often the clients that we're dealing with have had very little to do with us at all. So this sort of outreach of communication, sometimes even when we don't -- might not have anything to say, other than "I've arrived at the office; anything new?" is very important. And that's done predominantly certainly in the get-go when so much is up in the air and there's so much uncertainty and so much activity and energy.

Phone calls are the most important thing, followed by emails that state -- hopefully, clearly state where we're at and what we're doing, and what we know and what we don't know, and then crisp observations and recommendations, if we have any, considerations, if we have any.

And so, internally, we -- what we say is that if we have some important information for the client, he needs to know about it by phone, and it needs to be followed up thereafter with an email.

Q. Okay. Do you have -- this is Mike Kucharski. Do you have any situations where you have a conference call between the, say, the vessel -- you're talking to the master and you have the company on the same line? Do you work anything like that?

A. That has happened, but it is very rare. Normally -- it might well happen in a response scenario that is playing out over a more prolonged-type event period. Certainly, when things are settling down and the emergency phase is winding down and the recovery is

going on and the stakeholders are around the table, then we will certainly join in conferences so that we're all using the same data with the same endgame. And that's proved invaluable.

But in the early, or the onset of a response, I don't recall us ever having had a conference with, say, a master and his DPA, or his managers ashore or his response center, and us.

Q. I see. And in your experience now -- you say you deal with ship managers. How many of the ship managers have any type of a stability or do they have the stability experience there, in-house, where they're -- or how about engineering experience? Do they have stability and/or engineering experience, the ship managers?

A. Almost -- we're not --

MR. WHITE: Hold on, Robert.

Mr. Kucharski, are you asking Mr. Hanraads what the ship managers' experience from the companies are, what experience they have?

MR. KUCHARSKI: Yeah, the typical --

MR. WHITE: Or what experience the naval architects on staff at RRDA?

MR. KUCHARSKI: No. The --

MR. WHITE: Because if you just want the ship managers' experience in an individual company, he may not know that respectively.

MR. KUCHARSKI: Well, he -- I'm asking him what his

experience is.

BY MR. KUCHARSKI:

Q. Mr. Hanraads, what is your experience with the ship managers you deal with? Do any of them have any stability experience background or engineering background?

A. My sense is that it's normally marine people that we talk to in their office, the ship superintendent, either from an engineering or a deck background. And for the -- I feel as though I know that most shipping companies don't have naval arcs in house. There are exceptions that we're aware of, that run HECSALV themselves, but as I say, they are an exception. Most managers rely on us to be able to provide those answers.

Now, I think frequently the masters is using -- may well be using his loading program, particularly when a scenario doesn't involve grounding and lots of structural damage, maybe some measure of flooding, because it's more like a normal kind of condition, but -- particularly on a tanker. But for the most part, when there's an anomalous situation, like a response, yeah, they lean heavily into the expertise of RRDA.

Q. Thank you. That's what I was asking.

You mentioned flooding. How many -- since you've been at the RRDA, since about 2010, how many flooding situations have you had on vessels?

A. Well, flooding like the event on *El Faro*, very few. Flooding because of a collision or grounding event, a lot, relatively. And

we have had events on bulk carriers where there's been liquefaction of cargo. So although it's not the ingress of water, it's water popping out of the bulk cargo, and that's an interesting scenario. But in terms of water ingress, without collision or anything like that, quite a rare case.

Q. Okay. Thank you. Has there ever been any concern, back to pros and cons of a master calling in or the company, have there ever been any cases of where the company says, well, we didn't authorize that or a question of payment of fees, because you were dealing with the master as opposed to the company?

A. Nothing specific comes to mind.

Q. Okay.

A. Yeah.

Q. Okay. If the RRDA does get an electronic file with the departure loading information, okay, let's say it's a, you know, it's a CargoMax file because that apparently -- I know you mentioned there may be some container companies where you can accept data from other sources in CargoMax. But if it isn't a CargoMax file, how long does it take to provide the master with information as to whether the master can save the ship, if -- based on the flooding situation, based on the departure situation, how long does it take you to get the information like that to a master?

A. That depends somewhat on when it is that we get the load data for the ship and how it is that we get it. So let's say that we

receive a PDF. We print that out, and this is the output from the ship's own loading computer, which we would expect to be accurate for the last departure port. We might ask what sort of fuel burn that there's been, and make correction for that, and then load that up. Let's say that takes an hour to an hour and a half to do. And then we have to understand what it is that's -- what it is that we need to change in terms of what's going on on board the vessel.

So the reality of it is, is that information is more frequently unclear, and there's lots of reasons for that, that are understandable. But at some point we will get -- it's important for us not to delay, waiting for information that we might not really get for some time.

So then we will have a phone conversation with the -- in other words, it's important for us, I think, to move ahead with something, even if we're unsure -- not necessarily sure that we're exactly heading off in the right direction. We should be somewhere in the ballpark in terms of flooding a compartment.

So we'll then try and identify with the client or our point of contact specifically what it is we're trying to achieve in terms of an analysis. And that's a conversation that we have quite -- we try and have quite, you know, reliably, because it's important. Because we can go spinning some analysis or some scenario event and waste our time doing that, only to find that some better information comes in a little while later.

So again, it's really important for us to communicate clearly, to talk through with the client as much as possible the extent of the information about the scenario that is known, and then to agree that we will therefore flood this and this compartment as an initial step. And if the client agrees with that, then we'll go ahead and do that.

And as soon as those -- and thereafter, that -- once we've got the initial loads onto the ship and we've, we've validated that against the output from the ship -- you know, the ship's computer said when it departed the last port its GM and its drafts and its trim and its heel were this. And we load our HECSALV model and come up with the same or about the same numbers, then we know we've got a tool that's working correctly. And thereafter, we can make changes in fairly rapid order.

It is not always clear-cut. Sometimes we go back at the end of a response and think to ourselves why something took that long, and forget all the conversation and the interpretation of the data, and the activity that's associated with getting that far.

And -- but, if things go really well and things are clear-cut and information comes in, we should be able to turn out a phone call back to the client with associated reports in relatively short order. You know, what that is, is subjective.

Q. Okay. And again, maybe I wasn't clear enough. Let's say you had the CargoMax file, the LC file -- I believe that's what it's called, the extension. If you had the loading computer file in an

electronic form at departure, it was sent in at departure, so you already had this information -- and you mentioned fuel burn or any other change that had happened since departure, how long would it take you? You say relatively short order. If you had all that, so you didn't manually have to load it up from some kind of a PDF, or a faxed in or a piece of paper, if you had it in electronic form that you could put right into HECSALV, how long would it take you?

MR. WHITE: I think the uncertainty, Mr. Kucharski is, are you asking if he has the information from CargoMax, how long will it take him to get that initial model? Is that the question?

MR. KUCHARSKI: No.

BY MR. KUCHARSKI:

Q. On departure, if you have the LC file from the vessel, okay, and they call you up and say they've got an emergency, how long would it take for you to go back to the ship after you've loaded that electronic file into your HECSALV, to give them meaningful information to save the ship?

MR. WHITE: I think the uncertainty is, what are they asking? And is there a specific question that they're asking? And the -- and a specific modeling that may -- might be needed depending on the extent of structural flooding or stability that might be compromised. I understood your initial question to be, how long would they need -- would it take to model it --

MR. KUCHARSKI: No, I --

MR. WHITE: -- if they had the --

MR. KUCHARSKI: No. I'm sorry. I never mentioned modeling. Those were somebody else's, or your words. I said if the RRDA can accept an electronic file containing the stability departure information --

BY MR. KUCHARSKI:

Q. Okay, so they're getting an electronic file, Mr. Hanraads, the CargoMax file; you're getting that. You mentioned that integrates or goes directly into HECSALV. How long would it take you to give the master meaningful information such as, whether he can save the ship or he needs to abandon ship?

A. The reality of it is that -- to detail, in your example, the CargoMax into HECSALV --

Q. Yes.

A. -- it may incorporate directly and very, very efficiently. It may not. In fact, unless we've tested that and validated the two work, and the wheels of that meshing actually do what they're supposed to do, then that will be a quick process, let's say 10 minutes.

But it is not infrequent for us to get a file transmitted to us, an LC2 file, and for a lot of the individual components, for the weight distribution in that particular ship, to -- for there to be a distinction between the weights named in the CargoMax, which is developed and created in one place, and the way we have named spaces and compartments in RRDA, so that when we bring that

data in there's a disconnect. And those weights that are not -- the nomenclature on those spaces that do not mimic exactly what is named in the HECSALV, get put into miscellaneous -- into something called miscellaneous weights. And then the engineer has to physically go through each of those, and there might be lots of them, and say, okay, what space is this? What's the longitudinal -- or, you know, what's the reference locations for these spaces or this item. And he'll physically move it back out and rename it correctly. So the answer there is, so accepting that, there may be delay in that. And it will not be as straightforward as one would hope.

Or if it did happen very quickly, very efficiently, and the LC2 file went into CargoMax without a hitch, and HECSALV's results mimicked the CargoMax results in terms of output so we're satisfied that we can do that, we should be able to say that that should happen in just a few minutes. All right, let's say 10 minutes.

Thereafter, we then take advice from the ship-side folks that a certain condition has been identified, and we can then use the particular characteristics of the HECSALVe program to be able to flood a space or to modify the -- you know, what's going on, internally, that will then give us the results on stability that we would need.

But I think, to ask the questions that you have, these -- that's not a black-and-white issue. It's very hard for RRDA to

come back and say, our advice would be for you to -- your ship is going to founder here in the next few minutes. That's a very difficult thing for RRDA to be able to point back and do. And we've never found ourselves exactly in that situation because this is not a dynamic program. We are not analyzing, you know, the dynamic input of wind and wave and weather. And that -- we can do those things in a static sense. So that makes it very hard.

We can come back with what the analysis shows us in terms of the available stability and strength, and then, from that, collectively, recommendations can be made.

Q. Understood. Thank you. Thank you.

So back to the modeling that you do, initially. I believe it's modeling and not -- I want to be -- I don't want to put works in anybody's mouth. But back when a vessel first enters into the RRDA, is there modeling done at that point? And what's the nature of the modeling?

A. Okay. Because we have such a large inventory of existing vessels, there is some likelihood that there will be a model of a ship that is a sister, and so we could reach into our existing inventory and then create -- for each vessel enrolled, we create a separate file. So we would take a sister and create a new file. And then we would validate, because not all sisters are equal, we would validate the particular ship that was being enrolled against its specific data, most principally, is the trim and stability book.

So each vessel enrolled -- now if it's a lead, then we've got a lot more work involved and the model is created from scratch. And that is, one of the engineers sits down for something between 40 and 80 hours building the electronic model and the files that are needed for us to be able to operate HECSALV when we need that.

Q. I see. Okay. And let me ask a -- I wasn't going to ask it now, but you mentioned wind and, you know, dynamic conditions. Can you put dynamic conditions, say, a wind factor, in the HECSALV model to develop some kind of wind heel?

A. Yes, we can. We can do that. And we build a profile of the vessel into the original model that we build for the ship. And for the likes of ships like bulkers and tankers that don't carry, normally carry anything on their decks, that's one thing. But with ships, container ships and breakbulk vessels, Ro-Ros, et cetera, that have varying amounts of wind area according to what kind of cargo they're carrying and how much on deck, then we will build a wind profile in HECSALV at the onset when the vessel is enrolled. And we may well have to tune that, depending on what condition the vessel is actually in, on the day of an incident.

MR. KUCHARSKI: Okay. Understood. Let me stop there to see if there are any follow-up questions along the line we've asked so far.

MR. STOLZENBERG: This is Eric Stolzenberg at NTSB.

BY MR. STOLZENBERG:

Q. I just want to -- per Mike's questions, I think you said

earlier, you haven't given advice to a vessel that's going to founder. So just -- to that, in the time you've been at the RRDA, has there ever been an instance where you've suggested to the master of a vessel that they might consider departing the vessel because too many compartments are flooded or it looks like it's in danger of foundering?

A. No. I've never done that.

Q. Have you ever come close? Has there ever been discussion where people talk about it and say, boy, this is iffy?

A. No. I don't recall.

Q. Okay.

A. No is the answer that I think is the correct answer.

Q. Well, that's a -- okay, thanks. That's interesting. You know, that's -- I was trying to get a feel for how this might help vessels in certain situations and what the real-world experience is.

Following up on some other -- I'm sorry. Did I cut you off?

A. Well, your -- further to the no answer I gave, thankfully, the number of incidents that we've had where a vessel has foundered or remained stuck on a rock, are very few and far between. And so the -- almost all events, there's been no need for a crew to leave the ship.

Q. Thank you. And do you know how many over -- when -- I know you gave your experience earlier, but how many years that would be over, that you can recall that answer for?

A. That is an 8-year period, and a 2-year period, different occasions, different times.
Q. So combined, 10 years?
A. Yeah.
Q. Okay. Thank you. Also, I think you said it takes 40 or 80 hours for an engineer to build the model. Is that when a vessel first enters the program?
A. It takes between 40 and 80 hours to model a ship that we don't have a sister for, so starting from scratch. And the reason that there's a distinction between the -- you know, there's a range of between 40 and 80, we have different sorts of ships that might be more intricate or not. And sometimes, we will have the benefit of a GHS model, which is a hydrostatic model that's built internally in ABS for other purposes. And if that exists, then we have the advantage of that, which means a lot of the work from scratch doesn't have to be done.
Q. Okay. So when a vessel -- I believe, when a vessel enters class, is it automatically entered in the RRDA program?
A. Most ships, not all ships.
Q. Not all ships? So at that time in --
A. Yeah.
Q. At that time, then, would -- and please correct me if what I'm saying is incorrect. At that time, then, RRDA would review to see if they have sister models of the vessel or they would endeavor to produce a new model for the vessel?

A. Yes. That's correct.
Q. Thank you.
MR. STOLZENBERG: That's all the questions I have along those lines, Mike.
MR. KUCHARSKI: Okay, thank you.
And anyone else on the phone, questions along the lines so far asked?
MR. SCHILLING: This is Spencer Schilling with Herbert Engineering. I'd just like to maybe try to clarify the difficulties with reading an LC file into HECSALV. And I think Mike, maybe your questions have already clarified this. I thought I'd just ask Mr. Hanraads one other question.
BY MR. SCHILLING:
Q. And that is, you mentioned some difficulties reading in the LC file that was created by CargoMax, and that some of the tank weights and things might be assigned to the wrong groups, or different groups or miscellaneous weights.
Is it your understanding that the -- or I should say it this way. Does the HECSALV models you've created, is that the same as the model that's used to run the CargoMax? I'm not talking about the load case file but the actual model of the ship.
A. Most -- if I understand your question correctly, we most frequently have no access to a CargoMax model and so we build our own model in HECSALV.
Q. Okay.

A. And because there are a lot of similarities between CargoMax and HECSALV, there is the ability to load one into the other.
Q. Is it the case that if -- that in order to be completely seamless for reading a load case file, the models would have to agree in terms of how they named the groups and named the tanks and the other weight distributions and things?
A. Yes. That's true.
Q. So the difficulties in reading the LC file are because of the two different models that are used? One is a HECSALVe model used by RRDA and one is a model used by CargoMax. They both correctly define the ship, they've just done it in a, maybe a different way?
A. Correct.
MR. SCHILLING: Okay, thanks.
BY MR. KUCHARSKI:
Q. Mr. Hanraads, along the line Spencer Schilling -- this is Mike Kucharski, would it be useful to have the CargoMax model for the vessel there at the RRDA?
A. I don't -- my answer is no. It would not necessarily help us because -- I think my first pat answer to that is because we will always respond in HECSALV. And so I can't think of a way, not to say that there isn't one, that having the CargoMax software available to us, would help.
What would help is, I suppose, if all ships that had a CargoMax, routinely -- or sent us their load case, so that we could then load it, test it, and make whatever changes might be

needed to make the two -- the data from one go into the other efficiently.

Q. I see. And the -- you said approximately 50 vessels, I think it was, sent their departure conditions to you. Are any of those in CargoMax with the LC files, if you will?

A. Yes, there are some. I don't know offhand what that number is. But we do note, in our responder manual which ones are LC and which ones are more likely to be a PDF. And I would estimate that, out of those approximate 50, there's approximately 5 to 10 that are LC files. Ten, closer to 10.

Q. And when you get those, do you ever prove those, or test them?

A. We have indeed. Yeah, and we identify that as a separate column in the responder manual.

Q. Great. Great. Let me ask, are you okay to continue, or do you want to take a break, at all?

A. I'm okay at the moment, thank you.

MR. KUCHARSKI: Okay. And everyone on the phone ready to continue? Anybody need a break? Okay.

MR. WHITE: This is Gerry White.

MR. KUCHARSKI: Hi, Mr. --

MR. WHITE: Do you have an idea, as far as time-wise, we can --

MR. KUCHARSKI: Yeah. I think we're getting towards the end. We're well past the halfway point. I'm guessing probably, you

know, depending on add-on questions, I would say 40 minutes or so.

MR. WHITE: Okay, thank you.

MR. KUCHARSKI: Sure.

BY MR. KUCHARSKI:

Q. Okay. So Mr. Hanraads, this is Mike Kucharski again. Was the user's manual for the *El Faro* -- and these questions here will be more -- I think some of them will be tailored more to *El Faro*. But the user's manual for the *El Faro*, was that the vehicle carrier user's manual? Is that correct?

A. That is correct.

Q. Okay. And at page 6, it's paragraph 3.1 -- I'm sorry, Section 3.1, and in paragraph 2, where it says, "important to maintain a direct line of communication," I think we've talked about the communications, and those are essentially whatever mode it is, if it's email or if it's telephone, just have some form of direct line of communication; is that correct?

A. Yes.

Q. And is there any preference of the RRDA what mode of direct line of communication is used?

A. Telephone every time.

Q. Okay, that's the preference. Great.

And the same page of the vehicle carrier manual, if you will, page 6, the last bullet on the page, where it talks about the program used in the RRDA program. Do you see that, the very -- do you see that wording?

A. I do.
Q. And that's -- just to confirm, that is HECSALV; is that the program we're talking about?
A. You are referring to the very last bullet, under Notes, in bold?
Q. Yes, correct. The very last bullet, and it's the last line, it's where it says, "file will be compatible with the program used in the RRDA program." And is that program HECSALV?
A. Yes.
Q. Okay. And you, I believe you've already said that you don't have capability of any other type of loading program except for maybe limited circumstances, some of the container vessels have data files which they can send to you electronically; is that correct?
A. That is correct.
Q. And you said that the RRDA does not have any form of CargoMax that they use in the office; is that correct?
A. That is correct.
Q. Okay. Have you ever seen the damage stability module of CargoMax, or no?
A. No, I have not.
Q. Okay. The pages 7 and 8 of this same manual, if you will, it has different conditions, if you will. At Section 3.3 is Collision/Damage Condition; 3.4 Grounding; 3.5 Structural Damage; and 3.6 Lightering Summary. For the *El Faro*, which condition

would you expect it to fall under?
A. The 3.3.
Q. 3.3, okay. And would that specifically -- 3.3 is Collision/Damage Condition. Would it be damage condition that you would be looking at?
A. Yes.
Q. Okay. Okay. The forms in the user manual, there are a number of forms at the back of the manual. Are those forms in a writable type PDF format? In other words, you know, where you've seen that the fields are permanent, but the user can input directly on the PDF form, that you -- that they have?
A. We do have, in a -- yes. The answer to your question is yes. Occasionally, we're requested to send those, more likely for a drill-type event. And so we'll send the actual -- I think they're Word documents of the same reports.
Q. But currently, you don't -- in the RRDA, those are not given to the vessel in a Word document format, where they -- or like I said, I've seen PDF where the fields are permanent but you can input the information. They're currently not sent that way?
A. That's correct.
Q Okay. The RRDA, and I look at -- let me just look at page -- Report 5, page 2, if you will. I'll give you a second to get there. It's -- I think it's the last, or the second to last page of the user manual for vehicle carriers. It's Report 5, page 2. And at the very top it has, Ship Pump Information. Do you see

that page?
A. Yeah.
Q. Do you -- before you get this report, okay, do you actually keep on file the pump capacities of the different entries that you have in the RRDA?
A. We sometimes don't have that information. We may not have that information.
Q. Okay. So that's not a, it's not -- do you have a standard questionnaire you send out to the owner about the vessel when they become -- initially are taken into the RRDA? Do you have a questionnaire that goes out to them?
A. We do not.
Q. Okay. Okay, so how would -- on some of the vessels, that pumping capacities, the pump information, how would it be captured for some vessels and not for others?
A. We have a list of data that we obtain when an enrollment is commenced. And pump capacity is included in there. I've got to say, though, as a routine, we don't actually frequently refer to that data itself. And these reports here, in terms of the amount of views that we've been doing in the RRDA, it is -- I don't, on one single occasion, recall this report having been sent to us.
And the reason for that is that throughout a response, there's -- the way in which a ship is brought to recovery is, I think, explored through different operational avenues that the managers are looking at. These forms tend to steer themselves

into a clearcut black and white type response.

And frequently, throughout response, that doesn't exist. And so these are here as a reference, a ready reference for the kinds of information that we would like to know more about. But it's not that frequent that that information comes to us in the form of these forms. It's built on, over a course of hours or days, and with different emails, backwards and forwards.

Q. I see. I see. Okay, so again, I think I've asked this, and I think you've answered it, but I just -- and I apologize in advance for, if I'm asking it again.

So you don't have a set form, if you will, a pro forma that you send to the company and say, okay, thank you, you know, you're in the RRDA, please provide us with the following information for your vessel?

A. Correct.

Q. Okay. Okay. On page 3 of the manual, Section 1.2, you talk about development of the computer model. And we've asked about that, or we've talked about that already. But for the *El Faro*, at the time of the incident, did you have a computer model for the *El Faro*?

A. We did. We had a fully developed HECSALV model.

Q. Okay. So it -- that was my follow-on. So it was a full HECSALV model; is that correct?

A. Yes.

Q. Okay. And the, page 6, 3.2, Section 3.2 -- and I just want

to make sure that I'm clear about the validation process. And I think you talked -- you know, we've talked in -- not in -- in generalities, if you will, you know, to time frame to get information. And you were talking about, you know, it takes some time to validate the information.

Could you revisit that and just say, you know, the process for validation, when information comes in, the departure condition, if you will, from a ship or the ship owner when the vessel is actually having some kind of an incident on board? Could you run us through the steps?

A. Yes. We will receive a call and confirm that it's a real incident and that we are to mobilize. And the -- we'll establish communications, time frame, probably. Engineers will then access our database, identify the ship and what the hull is for that particular vessel.

And then from our data, I'll start the HECSALV model for that particular hull, using the hull files in the folder that we have for it. And if we have not, as is likely, received the load data for the ship in advance, then we will have requested -- or if we have not, we will immediately thereafter request the manager of the vessel, if it is the manager that we're talking to, to send us the load condition, the last load condition for the ship.

That normally comes in the form of an email, as an attachment. And we will then print that out. And one, two -- at least two, possibly three engineers will then, will have a HECSALV

model for the ship brought up but operating it in their own individual folders. And each one will then load the ship according to the data that we have. And they will validate -- certainly, two of the engineers will validate that -- probably be chatting to each other along the way, but will then validate that they're in agreement with the way that the ship has been loaded in the HECSALV model.

And then from the summary output for the ship that was -- the stability data that was provided to us via the ship or from the ship, we then take a look at some of the principal details as the results, from HECSALV, and compare them to that of the approved loading computer's output. Principally, what are the drafts. If the drafts are right, then the model's behaving correctly in terms of its dead weight and it's -- of its stability characteristics. We'll take a look at whether we agree that the vessel is upright or heeled, and what the trim is; does the GM concur with what the ship's approved output is. Same for bending and shear.

And if things are going as usually well as they -- we would expect at that point, we would say, regardless of what the ship is using in terms of its own software, we now have a model that -- we now have a HECSALV loaded correctly. And from that point, we can move ahead and start building a tree out as to what the events might be.

Q. Okay. And this validation process, if -- would it help to have this validation process of a model, if you will, and a

loading condition, would it help to have that validation before the incident?

MR. WHITE: Are you asking for a validation of the model, for the -- with the ship that just loaded? You realize that loaded condition of the ship might not be the same on each voyage?

BY MR. KUCHARSKI:

Q. Mr. Hanraads, would the validation, does it have to be done for each loading condition or are you able to validate the ship's model against the information, say, that came from CargoMax? Would you be able to validate that model without having to go through every single compartment each time?

A. I am somewhat unsure of the question there, sir.

Q. Okay. Does it -- does that model have to be validated each time for each loading condition, even if it's the same vessel? If that same vessel came to you every week with an incident, would you still have to go through the same exact validation process each time?

A. Yes. I think the answer to that is yes.

Q. Okay.

A. I think, to expand on that a little bit, the -- we would expect, our expectation is, is that the model we use, when needed, wouldn't be inaccurate, because as a standalone model it has been -- gone through a validation process that we've applied internally. That's mostly against the trim and stability book, but it's a little bit more complex than that. But when the model

is created, it's checked against load conditions from the trim and stability book. And if there's an error there, then there'll be a feedback loop and some correction, and we'll find -- the error will be found.

On the response side, you know, although, having said that, these things tend to have some sort of organic compound to them, and although we find our systems to be extremely reliable, there are occasions when a model would come up and there'll be something not right with it. And that, therein, lies -- even though the model has been created, gone through an approval -- a validation process, for whatever reason, on the day there's an error found or there's some concern that something isn't aligning correctly, and so that's where the violation of the load case -- against the load case provided by the ship is of significance for us.

In a sense, it's a -- I feel like it's a bit of a -- from my perspective, it's a good validation to have, simply because we're not doing it for the sake of a validation. We're loading the ship initially because we need to load the ship, so that we can respond. But since we've loaded the ship, let's just check that our results jive with the results that we've received from the ship, and therein, is a form of validation. We're not principally doing this, that part of it, to validate the model.

Q. Okay. And what are you getting from the ship to validate against, then?

A. That would be the load case that's sent to us for the

emergency event. Assuming the ship is not one of the 50 that sends us routinely the load case, there is a great likelihood that we won't have any load data on the vessel. They've called us for an emergency and, essentially, we can't do very much at all, unless we know -- unless we can accurately identify how the ship is loaded in our HECSALV model.

So they send us the load data in a PDF, probably. We load it. And now, right there, we should be good to go in terms of being able to further the analysis for response. But since we've got the ship loaded according to their data, let's just check to make sure that HECSALV drafts and GM, trim, heel, bending and shear, are the same as that provided by the vessel, as a check.

Q. Okay. Okay. So you're actually, besides just seeing tank values or weight values in the different compartments, you're actually seeing something like you mentioned, shear, stress, you're comparing those values, drafts, I suppose, too? Other --

A. Drafts are the principal thing that we're interested in. Does our ship look to be loaded in the same way as their program says it is? Drafts, trim, heel, then GM, bending and shear. If any of those things are skewed, then we've got to go and find a reason why.

Q. Understood, okay. Very helpful. Thank you.

Did any of the TOTE vessels send their departure loading conditions to you in electronic files prior to the accident?

A. Negative.

Q. Okay. How about in any hard type of form?
A. Not to my recollection.
Q. Okay. Has any of that changed since the incident?
A. I think that we are not yet receiving load case files or departure conditions.
Q. On departure. Okay. And did TOTE run any drills with its vessels with the RRDA?
A. Not to my knowledge.
Q. Okay.
MR. KUCHARSKI: I'll pause there, to see if there are any additional questions. Eric, no questions?
MR. STOLZENBERG: Yeah. I had an additional, just a clarification.
BY MR. STOLZENBERG:
Q. What are the -- typically what's the largest work item for the RRDA engineers before you can generate an output? And you may have already answered this, but I'm just trying to ask it very clearly. What takes the most time in the process?
A. Well, as an engineer sitting at a desk, it's their job to enter data. And as such, if the data's available, then these things tend not to take too long.
I think the answer -- one answer to your question is the longest -- the most arduous task and the longest process that we would have in a response would be the correctly loading a large container ship because of the amount of detail in it. And that

would take a significant amount of time.

But it's never that -- it seems as though it's never that simple. There's a lot of phones, phone calls being made, and scraps of data coming in here and there as things evolve, and course changes in the direction that an engineer will take. Once they've got the load case, they might be busy defining a measure of damage.

That's another part of the answer, I suppose, doing -- correctly detailing the amount of damage that needs to be analyzed once more information has come in. That can take some time. Maybe we need to build a section for the ship that doesn't exist from a structural component point of view. But -- so there's no easy answer to that one, I'm afraid.

Q. Okay. But if I -- one thing I might be able to draw from that is, in general, compared to tankers or bulkers, a large container ship can be one of the more arduous tasks to get the loading inputted?

A. Correct. Again, there's some gray there. We can load a container ship quickly in a very coarse way, a single center of gravity per bay. If, for whatever reason, we need more detail than that, then we can -- we might need to -- if, for example, a container ship' lost some containers, or is heavily heeled and is losing containers and now we need to account for individual containers, then it starts multiplying the measure of the task.

Q. Okay. So it sounds like that there's no easy answer, but

container ships potentially are the most arduous task. And is that due to, just there's less tanks on a tank vessel or a bulker, you know, you got 10 tanks max, or something of that nature, or as far as the cargo, the cargo blocks themselves go?

A. Yeah. That's true. Tankers, bulk carriers tend to be easier to load. Bulk carriers can be a bit of a problem for us if they've got water and cargo mixes and this sort of thing, but relatively simple still. Containers, very complex, can take a lot of time. And then we will get -- like *El Faro* and some of the other vessel types that we have, including drill ships and things like that, they can be complex items to enter, too.

So it depends on how many different pieces of data that are associated with the loading of the ship. Big tanker, few tanks, relatively simple. Something as complex as *El Faro* and some of the other ships that we've got in the program can take a lot longer.

Q. Thank you. So if you recall back to the case of the *El Faro*, do you remember what, of the sub-processes, was the most arduous or took the longest time to obtain or produce?

A. I know that we -- the resection of the load data for the ship took some time. The model we had created was relatively new to us and so was, for the most part, extremely reliable. And yeah, there was some time taken to get the load data that we needed. Later on, I know we spent a good amount of time identifying exactly what the profile of the ship was for wind, and making a

modification for it. And I think that was it.
Q. So the profile for wind, you would have had to know the container load-out above the main deck there? Is that -- am I correct in assuming that?
A. That's right. We had a fairly rough profile, and we customized it for the actual load condition of the ship. And so that had us needing a better understanding of exactly where all the -- what the stowage on deck looked like.
Q. Thank you. So to understand it, from our discussion today, even if you had the departure condition for *El Faro*, it wouldn't have been entered ahead of time. Would that have -- how much time would that have saved, in your estimate, for the *El Faro*, if you had had it when they sailed?
And as I understand it, it doesn't mean you would have done anything with it. It's sitting there, ready. Can you estimate how much time that might have made it shorter, if at all?
A. Yeah. I think, in the case of *El Faro*, we would have saved some time. I can't recall exactly, but maybe 2 to 4 hours.
Q. And so that time goes to the phone calls to determine the -- the condition and then get the load cases?
A. Yes.
Q. Or the, excuse me, departure load case?
A. Correct. And then some tuning of what that was. Yes.
Q. It seems -- that seems more time than I expected. But all right. Along the same line, do you recall about how long it took

you to produce the first output files, which I think, Mike attached here? It's called -- it's just the initial condition, as one of the exhibits for today? Report 1, initial condition; do you know how long that took to produce?

A. I know --

Q. Estimate.

A Yeah. I know I was looking through some of the details. I know that we sent reports away, and I think these were the first hard copy outputs, or at least printed outputs from HECSALV. We sent them away in the evening on day 1. And about how long, to answer your question, how long was it to actually produce those or to have had, for example, the initial, I don't know.

What I'm saying is, if we sent them later on in the afternoon or early evening, it may have been that we -- and I can't recall exactly, it may have been that we were collecting the results for the three reports, and before we sent the first. I just don't recall. I would think that the initial report was actually available for sending before the last report, but I don't recall. I do know that we sent them off in one email, which is, you know, rather unusual.

Q. All right. And then just a follow-up on earlier, you know, just -- I don't understand. If you could explain to me, why would having the departure conditions have increased the time to produce an output for *El Faro* by 2 to 4 hours? Just, if you could expand on that a little.

A. Right. Roger that. Thank you for that clarification. That's -- no. I think there would have been a time saving of 2 to 4 hours, had we had full cargo -- full load distribution of *El Faro* in advance. It wouldn't have taken more time. It would have taken less for us to respond.

Q. Okay. And why? If you could just give me some details as to -- help me understand why that would have been, lowered the response time for the products?

A. Because initially we were provided fuel data for the vessel, and that was an incomplete load case and so of limited use for us. Partially useful, yes, but we couldn't complete the actual condition on the ship. There were -- there was a period of time which we waited for the other data to come in.

We had some queries with regard to fuel that took some clarification. And so all that took time. Had we had a departure load case -- oh, and that -- and even throughout the earlier part of the response, we were able to load the ship in a rough sense based on data received from CargoMax, but we were not able to actually identify precisely where the cargo was stowed because we didn't have the stowage plan.

And so it -- because of the type of vessel the ship was, the -- and the measure of it being loaded, it's a complex thing with containers and Ro-Ro and other things going on, us loading the ship correctly was not necessarily that easy for us to do. We could do it against the information that came throughout the

afternoon, and we did. But in terms of us then needing to do an accurate wind profile, we -- the CargoMax output for that, didn't have that measure of detail, and so that was more information that was needed. And all that took time.

So in an ideal way, had all that information been available, then there would have been a fairly good amount of time savings.

MR. STOLZENBERG: All right. Thank you, Mr. Hanraads.

Mike, that's all I had.

(Cross-talk.)

MR. HANRAADS: What I meant was, had all that information been available, you know, at the onset of the incident, then there would have been some time saved.

MR. WHITE: Mr. Kucharski, Gary White. It's 3:15. I was wondering if we could take a 10-minute break?

MR. KUCHARSKI: Sure, Gerry. Just so you know, I was just going to ask one more question. But 10 minutes would be fine. Why don't we take 10 minutes and come back? Okay.

MR. WHITE: Thank you.

MR. KUCHARSKI: Okay.

MR. HANRAADS: Thank you.

(Off the record.)

(On the record.)

MR. KUCHARSKI: Jeff Stettler, are you on the line, and Dennis O'Meara, are you on the line?

DR. STETTLER: I'm still here, Mike.

MR. O'MEARA: Yeah. Yeah, Dennis O'Meara's back.

MR. KUCHARSKI: Okay, great. Great. I think we're ready to wrap it up. The time now --

MR. HANRAADS: I think the only thing of principle that I can think of is that it would be good for there to be something that increases the knowledge of what it is RRDA does and can do for those on board. I think a lot -- I think the measure of which, about which RRDA is known, I'm sure, varies tremendously and it depends on a lot of variables. But if there is an opportunity for these emergency response services like RRDA to be better understood and the use of them better utilized, such as it is, then that would be a good thing. I'm not sure exactly how -- what recommendation that would be, but it's a general statement.

MR. KUCHARSKI: No, that's fine. That's fine. Thank you for that advice, if you will, or that recommendation.

With that, I'll go around one more time, or ask one more time if there are any follow-up questions.

MR. STOLZENBERG: This is Eric Stolzenberg, NTSB.

BY MR. STOLZENBERG:

Q. Mr. Hanraads, following up on your last statement, you ever get any feedback from drills, from members of the ships, indicating those are helpful in them understanding what RRDA does?

A. We do. At the end of every drill, or for most events, we send out a client feedback form with some carefully worded questions and a score. It gives us the ability -- and yes, so the

answer is yes. They're able to score us against several questions, and then state whether they want us to call us back about something that they've referred to or if they have any other general comments. And that is -- we do that as part of our procedures.

Q. Okay. And so let me follow up again on that and be more clear. Do you ever hear directly from masters, mates, engineers on the ships in that feedback, or get any feedback from the vessel?

A. I won't say it hasn't happened, but we direct our feedback form to the client, not to the master. And it is rare that we contact with the masters directly, so mostly no.

MR. STOLZENBERG: Okay, thank you. That's all I have.

MR. KUCHARSKI: Any other questions on the phone?

MR. WHITE: This is Gerry White. I just have a couple of follow-up questions.

MR. KUCHARSKI: If they're general, but they're -- you're -- the attorneys in our process do not participate in asking questions of the witnesses. So if there's any clarification you need from me, Mr. White?

MR. WHITE: Are you going to straighten out the record as far as what was produced and what was required? But if you want me to do that in writing, I'd be happy to do that. But we've produced documents that I don't think necessarily -- I don't know if the panel has reviewed those documents.

MR. KUCHARSKI: I'm sorry. You produced documents?

MR. WHITE: Well, this is the -- for the sake of the record, Mr. Hanraads, this is the second time he's being interviewed. He was interviewed first by the Marine Safety Center. I don't know if there's a recording of that, so the first question is, Mr. Stettler, if there is a recording, could you let us know?

DR. STETTLER: Mr. White, I think that was an informational interview.

MR. WHITE: Okay.

DR. STETTLER: As I recall, there were -- there was no transcript for that made.

MR. WHITE: Okay.

DR. STETTLER: And I think that was one of the reasons that the NTSB wanted to do this second interview on their -- in their process.

MR. WHITE: ABS had also produced documents for the RRDA, that these weren't produced or circulated in connection with this interview by the NTSB. And I just want to make sure that Mr. Stettler can confirm that those documents were received.

DR. STETTLER: I believe we all received those, back in -- I don't have the date. I have to look through my folders here on my computer to see what the dates were. But there was a folder or some documents sent. If you want to give me just a second here.

MR. WHITE: As long as you have them. Apparently, I don't know if the NTSB has them, and that's the purpose for the

clarification.

DR. STETTLER: Well, I know that they had them because they had used them during those first -- that first interview, informational interview. But I'm not sure whether or not that submittal satisfies their requirements or not.

MR. WHITE: I'm sorry. I'm just wondering, as long as they have them, because apparently they weren't used today.

MR. STOLZENBERG: Eric Stolzenberg, NTSB. I know we did receive 10 documents from Mr. Stettler.

MR. WHITE: We had Bates stamped everything, including the full exchange that RRDA was involved in. So just for the sake of the record, they have been produced.

MR. KUCHARSKI: Okay. This is Mike Kucharski. Our interview has ended. It -- yeah, if there are any other questions related to our interview of Mr. Hanraads, I mean, I'll keep the line open --

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	SINKING OF THE S.S. *EL FARO* OCTOBER 1, 2015 Interview of Robert Hanraads
DOCKET NUMBER:	DCA16MM001
PLACE:	Via Telephone
DATE:	March 9, 2017

was held according to the record, and that this is the original, complete, true and accurate transcript which has been transcribed to the best of my skill and ability.

[redacted]

Pamela Jacobson
Transcriber